

## What is Claimed is:

1. A method for determining the ability of a compound to prevent the Human Immunodeficiency Virus ("HIV") from entering into T cell or other target cells, comprising:
  - (1) providing a first cell line that mimics HIV viral particles by expressing a gp120-gp41 complex on the cell surface and that contains a Tat protein in the cytoplasm;
  - (2) providing a second cell line that mimics T cells by expressing CD4 and its co-receptors on the cell surface and that contains a Tat-inducible reporter gene expression cassette in the nucleus;
  - (3) co-cultivating the first cell line and second cell line using conditions that promote cell fusion;
  - (4) measuring the amount of  $\beta$ -galactosidase produced by the fused cells;
  - (5) co-cultivating the first cell line and second cell line in the presence of one or more potential HIV entry inhibitors using conditions that promote cell fusion;
  - (6) measuring the amount of  $\beta$ -galactosidase produced by the fused cells; and
  - (7) comparing the amount of  $\beta$ -galactosidase produced in steps (4) and (6) to determine if the potential HIV entry inhibitor is a HIV entry inhibitor, wherein the amount of  $\beta$ -galactosidase produced will be less in step (6) than in step (4) if the potential HIV entry inhibitor is a HIV entry inhibitor.
2. The method of claim 1 wherein the first cell line is HL2/3 cell line that expresses a gp120-gp41 complex on the cell surface and that contains a Tat protein in the cytoplasm.
3. The method of claim 1 wherein the second cell line is selected from the group consisting of a HeLa-CD4-LTR- $\beta$ -gal cell line and a U373-MAGI-CXCR4 cell line that express CD4 and its co-receptors on the cell surface and that contain a Tat-inducible reporter gene expression cassette in the nucleus.
4. The method of claim 1 wherein the second cell line is a HeLa-CD4-LTR- $\beta$ -gal cell line that expresses CD4 and its co-receptors on the cell surface and that contains a Tat-inducible reporter gene expression cassette in the nucleus.
5. The method of claim 1 wherein the first cell line is HL2/3 cell line that expresses a gp120-gp41 complex on the cell surface and that contains a Tat protein in the cytoplasm and the second cell line is a HeLa-CD4-LTR- $\beta$ -gal cell line that expresses CD4 and its co-receptors on the cell surface and that contains a Tat-inducible reporter gene expression cassette in the nucleus.

6. A method for determining if two or more HIV entry inhibitors are synergistic when acting together to prevent the HIV from entering into a T cell or other target cell, comprising:
- (1) providing a first cell line that mimics HIV viral particles by expressing a gp120-gp41 complex on the cell surface and that contains a Tat protein in the cytoplasm;
  - (2) providing a second cell line that mimics T cells by expressing CD4 and its co-receptors on the cell surface and that contains a Tat-inducible reporter gene expression cassette in the nucleus;
  - (3) co-cultivating the first cell line and second cell line using conditions that promote cell fusion;
  - (4) measuring the amount of  $\beta$ -galactosidase produced by the fused cells;
  - (5) co-cultivating the first cell line and second cell line using conditions that promote cell fusion in the presence of a first entry inhibitor;
  - (6) measuring the amount of  $\beta$ -galactosidase produced by the fused cells;
  - (7) co-cultivating the first cell line and second cell line using conditions that promote cell fusion in the presence of a second entry inhibitor;
  - (8) measuring the amount of  $\beta$ -galactosidase produced by the fused cells;
  - (9) co-cultivating the first cell line and second cell line in the presence of the first entry inhibitor and the second entry inhibitor using conditions that promote cell fusion;
  - (10) measuring the amount of  $\beta$ -galactosidase produced by the fused cells; and
  - (11) comparing the amount of  $\beta$ -galactosidase produced in steps (4), (6), (8), and (10) to determine if the first and second entry inhibitors are synergistic, wherein the amount of  $\beta$ -galactosidase produced in step 4 minus step 10 is greater than the amount of  $\beta$ -galactosidase produced in the sum of step 4 minus step 6 and step 4 minus step 8.
7. The method of claim 6 wherein the first cell line is HL2/3 cell line that expresses a gp120-gp41 complex on the cell surface and that contains a Tat protein in the cytoplasm.
8. The method of claim 6 wherein the second cell line is selected from the group consisting of a HeLa-CD4-LTR- $\beta$ -gal cell line and a U373-MAGI-CXCR4 cell line that express CD4 and its co-receptors on the cell surface and that contain a Tat-inducible reporter gene expression cassette in the nucleus.

9. The method of claim 6 wherein the second cell line is a HeLa-CD4-LTR- $\beta$ -gal cell line that expresses CD4 and its co-receptors on the cell surface and that contains a Tat-inducible reporter gene expression cassette in the nucleus.
10. The method of claim 6 wherein the first cell line is HL2/3 cell line that expresses a gp120-gp41 complex on the cell surface and that contains a Tat protein in the cytoplasm and the second cell line is a HeLa-CD4-LTR- $\beta$ -gal cell line that expresses CD4 and its co-receptors on the cell surface and that contains a Tat-inducible reporter gene expression cassette in the nucleus.
11. An article of manufacture in the form of a kit comprising in separate containers in a single package a first cell line that mimics HIV viral particles by expressing a gp120-gp41 complex on the cell surface and that contains a Tat protein in the cytoplasm and a second cell line that mimics T cells by expressing CD4 and its co-receptors on the cell surface and that contains a Tat-inducible reporter gene expression cassette in the nucleus.
12. The article of manufacture of claim 11 wherein the first cell line is HL2/3 cell line that expresses a gp120-gp41 complex on the cell surface and that contains a Tat protein in the cytoplasm.
13. The article of manufacture of claim 11 wherein the second cell line is selected from the group consisting of a HeLa-CD4-LTR- $\beta$ -gal cell line and a U373-MAGI-CXCR4 cell line that express CD4 and its co-receptors on the cell surface and that contain a Tat-inducible reporter gene expression cassette in the nucleus.
14. The article of manufacture of claim 11 wherein the second cell line is a HeLa-CD4-LTR- $\beta$ -gal cell line that expresses CD4 and its co-receptors on the cell surface and that contains a Tat-inducible reporter gene expression cassette in the nucleus.
15. The article of manufacture of claim 11 wherein the first cell line is HL2/3 cell line that expresses a gp120-gp41 complex on the cell surface and that contains a Tat protein in the cytoplasm and second cell line is a HeLa-CD4-LTR- $\beta$ -gal cell line that expresses CD4 and its co-receptors on the cell surface and that contains a Tat-inducible reporter gene expression cassette in the nucleus.
16. The article of manufacture of claim 11 further comprising one or more well plates.
17. The article of manufacture of claim 11 further comprising a cell lysis buffer.
18. The article of manufacture of claim 11 further comprising a substrate for  $\beta$ -galactosidase chemiluminescence determination.

19. The article of manufacture of claim 11 further comprising a light emission enhancement solution.
20. The article of manufacture of claim 17 further comprising a light emission enhancement solution.